

VAPOR GROWTH APPARATUS

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Patent Number: JP5047666
Publication date: 1993-02-26
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Requested Patent: JP5047666
Application Number: JP19910202082 19910813
Priority Number(s):
IPC Classification: H01L21/205
EC Classification:
EC Classification:
Equivalents:

Abstract

PURPOSE: To alternately perform an ALE and a VPE without exposing a substrate with the atmosphere and without cooling it to the ambient temperature by narrowing between an inner wall of a reaction tube and the substrate on an ALF executing region, extending it on a VPE executing region, and optimizing material gas flowing speeds on the regions.

CONSTITUTION: One reaction tube 1 is defined on an ALF optimized region and a VPE optimized region, a substrate 8 is moved to the regions by a susceptor 7, and a compound semiconductor layer of a molecular layer and an atomic layer by a crystalline growth of VPE and an ALF is formed. In this case, the flowing speed of the material gas in the tube 1 is set to a limit value or more for exhibiting a self-limiting effect on the ALE optimized region and to a limit value or less on the VPE optimized region. Thus, a sectional area of the tube 1 is reduced on the ALE optimized region and increased on the VPE optimized region. In this manner, the ALE and the VPE are alternately executed.